Fourteenth Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

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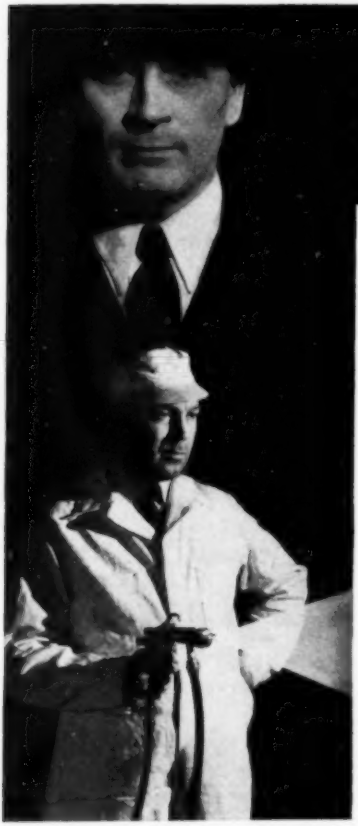

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Letters from Readers

OF INDUSTRIAL FINISHING

Editor's Note—These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters sent to them in care of this office will be forwarded at once.

Heat-Resistant Paint

We note with interest the inquiry in March issue, page 9, wherein B. B. Co. ask for a "heat-resistant paint" that will stand up to 1700°F. when coated on stacks owned by this concern. Our Aluminall (special protective aluminum finish) Flameproof No. 200-1 would very likely prove of interest, as it is being used for heat resistance and to finish surfaces that are in contact with high direct heat for continued periods of time by nationally-known firms.—The Kepec Co.

Grandfather's Clock

Will you be so kind as to tell me the name and address of the manufacturer of the Grandfather's Clock shown on page 12 of the March issue of INDUSTRIAL FINISHING?—N. S. Co. (Finish Mfr.).

This clock is a product of the Hanson Clock Co., Rockford, Ill.—Ed.

Silk-Screen Stenciled Label on Glass

In looking over March issue we notice an inquiry on page 7, under the heading of "Silk Screened Label on Glass." We intend using such a process on beverage bottles and would appreciate your giving us the names and addresses of firms that are selling this material to be applied by the improved silk-screen stencil process mentioned by the Editor.—V. T. Co. (Furniture).

I read in the March issue, page 7, a question concerning screening labels and designs on glass, which would stand washing solutions and could not be scratched off.

I would appreciate it very much if you could tell me where I could get detailed knowledge of this process and also any reference or texts that would tell me how this is done.—R. E. L.

These concerns have been given the names and addresses of manufacturers that can supply equipment, supplies and information about methods for silk-screen stenciling.—Ed.

Crack Filler That Will Stand Bleaching

We are looking for a crack filler or putty that can be used to fill holes left by nail heads or other depressions in wood, in both the natural color material, mahogany color and a walnut color. We want an article that will stand bleaches, as the putty is used in the cabinet room before the work goes to the finishing room. We use two well known brands of bleaching materials.

The product we are using at the present time disintegrates when the bleach is applied to the article to

Reminder

We have developed so many new and interesting items that we have neglected to remind you of our long established leaders.

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CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

The Country's Leading Makers

be bleached. Next, it will not take stain as it should.

We must have a crack filler that can be applied in the cabinet room so that when it reaches the finishing room it can be bleached if necessary, particularly as on prima vera and other light woods.

Would you mind running a news item in your magazine covering this matter?

We formerly made our own putty but found it to be bothersome making it and keeping it ahead, and if we can find a good putty we are interested.—G. R. E. Co.

One-Coat Air-Dry Wrinkle Finish

Due to our progressive production and to the inconvenience of storage we are confronted with a serious paint problem and would appreciate any assistance that you may render. We are interested in obtaining the name of a supplier who can produce a one-coat, 15-minute air-dry paint or lacquer finish, to be applied to metal parts, that will resemble our present synthetic, baked, wrinkle enamel finish, in colors.—O. L. Mfg. Co.

Taber Abrasion Tester

Some time ago we noticed an article in this magazine about an abrasion tester for painted surfaces, which I believe was called "Taber Abrasion Tester." Would you be kind enough to let us know where we may get in touch with this concern for further information regarding this device?—T. M. Co. (Sundries Departments).

The illustrated article appeared in Aug. 1937 issue, page 64. Manufacturer is the Taber Instrument Co., North Tonawanda, N. Y.—Ed.

Infra-Red Lamps For Bake Finishing

We are very much interested in the article, "Finish on Zephyr Cars," in March, 1938, issue of INDUSTRIAL FINISHING, pages 19 and 20. We would appreciate it if you could tell us a little more about the "clam shells" used for baking the paint. Would also appreciate knowing who manu-

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THE MACLAC CO., INC.
80 Cliff St., New York, N. Y.

factures these infra-red lamps.—X. Co. (Mfrs. Electrical Equipment).

We would appreciate obtaining some information from you regarding the infra-red lamp mentioned in INDUSTRIAL FINISHING, for March, 1938, in the article about "The New Ford Finish," pages 19 and 20. Specifically we want to know where we can obtain the lamps and information about them.—O. L. Co. (Printing Presses).

Will you kindly let us know where we can purchase the light equipment to experiment with repair work on synthetic enamels? You described the method briefly in your March issue of INDUSTRIAL FINISHING on page 63.—B. L. Co.

We would like to know more about this ourselves. So far, all we know is what we saw in the Studebaker plant at South Bend, Ind. (page 63, March issue), what we read about "The New Ford Finish," and the names and addresses of one manufacturer of infra-red electric lamps and one manufacturer of baking lamps. Further information will be welcome.—Ed.

Black Enamel for Hot Rolled Sheet Iron

From the January issue of INDUSTRIAL FINISHING, page 11, we note an inquiry from one of your readers for an enamel to be applied to black hot-rolled annealed sheet iron. Will you kindly send us the name and address of the company interested in this material?—The Sterling Varnish Co.

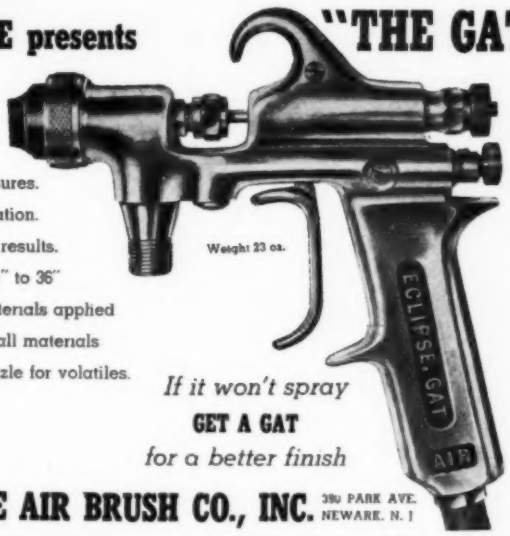
Cementing Celluloid

We notice in Feb. 1938 issue, page 70, an inquiry regarding an adhesive for cementing celluloid. We make all types of celluloid cements and will be glad to communicate with T. D. R. if you will furnish us his name and address.—Celluloid Corp.

In a recent issue of your magazine I noticed an inquiry by T. D. R. on the problem of cementing celluloid. I have done some work along this line at various times and have found that a 20% solution of ethyl cellulose in toluol is excellent for the purpose. A little pressure is necessary until the ethyl cellulose sets, but the bond is permanent. Another good

(Continued on page 56)

ECLIPSE presents "THE GAT"



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RUDD LACQUER & SEALER CORP.
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Close-up view of new down-draft hydro-filter spray booths at the Studebaker plant. The perforated washed-air duct above provides a gentle down-pressure of clean fresh air directly above the work. Note also the continuous grille on both sides of the conveyor line; all fumes and overspray are drawn straight down and away from workmen and out through these grilles. Several of these spray booths are in the body painting division of this automobile factory.

Lacquer, Synthetic Enamel on

MECHANICAL equipment of the latest type plays a dominant part in the finishing of Studebaker automobiles —the President and Commander models. It includes many conveyor lines, sanding machines for smoothing the bare metal, a 3-stage bonderizing unit for treating fenders, hoods and other metal parts, body cleaning equipment, flow-coating and water-wash spray booths, air-conditioned rooms, ovens, portable rubbing and polishing machines.

All bodies are finished in one 6-story building 100-ft. wide by 800-ft. long. Fenders, hoods, lamp shells, and other outside parts to be painted are finished in another building; the chasses, are painted on still another painting production line.

The effect of new and different finishing materials is strikingly in evidence on the paint lines where Studebaker cars are finished. Lacquer coatings, which are carefully sanded between coats and then given extra rubbing and polishing treatment, are used on the higher priced models—the Presidents. Synthetic enamel coatings, which are baked to a hard lustrous durable film that requires no sanding, are used on the lower priced models—the Commanders. A separate production line is provided for each of these two different types of finishing mate-

Note — These photographs were taken shortly after new installation of hydro-filter spray booths, baking ovens and air-conditioning equipment had been completed, hence the absence of men at work along modern conveyor lines.

Photographs furnished through courtesy of The R. C. Mahon Co., Detroit, Mich.

BY W. H. ROHR

...mel...on Auto Paint Lines » »

...asses, ...paint- ...ferent ...gly in ...where ...ished. ...care- ... and ...d pol- ...n the ...Presi- ...tings, ...d lus- ...quires ...lower ...nders. ...s pro- ...o dif- ...mate-

rials. Both types of coatings produce excellent finishes for automobiles—smooth, hard, lustrous, durable and attractive—and only an expert can distinguish between the two when the completed "dolled-up" cars are ready for shipment.

For both types of finish the steel bodies receive the same preliminary operations and materials —cleaning, prime coating, glazing and the application of red oxide undercoats. However, fenders, hoods and other sheet metal parts proceed on separate lines as soon as they leave the 3-stage bonderizing station.

At the beginning of the body-cleaning line workmen are busy brushing a chemical cleaner solution over and around the edges of doors, windows and various places which would not be touched by sprayed material directed against the outside of the body. When this cleaner solution is wiped off soon afterward, all dirt and grease comes with it leaving the body metal perfectly clean. Bodies then pass through spray booths where a heavy coating of Aridine cleaner (about the consistency of heavy paint) is sprayed on. Bodies then enter an oven 150-ft. long where this cleaner is baked at a temperature of 225°F.

The baked cleaner is removed partly by hand brushing and partly by power brushes. With the

removal of this baked-on cleaner the surface of the body metal is chemically clean as well as mechanically clean down into the pores. It is in perfect condition to receive the primer coat which will form the foundation of the final dress-up finish.

On this same floor of the building, the following operations are performed in the order in which they are named:

1) Spot glazing.

2) Spray a double coat of primer all over the body.

3) Bake primer coat in oven at 240°F. for one hour and 50 minutes.

4) Spray a glaze coat over entire body.

5) Spray double surfacer coat over entire body.

6) Bake surfacer coat at a temperature of 240° to 250°F. for 1¼ hours.

7) Water sand the surface over entire body by hand.

8) Dry-off oven; 15 minutes at 225°F. (Then follows the trim stick operation—the placing and fastening of slender sticks in interior of body for tacking of upholstering).

9) Touch-up spraying to take care of any sanded-through places.

10) Spray a neutral-color ground coat on entire body, for lacquered bodies—and a sealer coat over weld lines, soldered spots, etc., on enameled bodies.

Bodies for all models of passenger cars receive the sequence of operations just described, but when they are moved to the paint production lines on the fourth floor, the President models are delivered to the lacquer line while the Commanders are sent to the synthetic line.

On the synthetic enamel line the bodies are wiped off and the interiors receive coatings of plastic sound deadener material and mats to cover same. Then comes the spraying of two double coats of synthetic enamel in water-wash spray booths, as illustrated in

Fig. 1—Parallel paint lines, each equipped with down-draft hydro-filter spray booths.

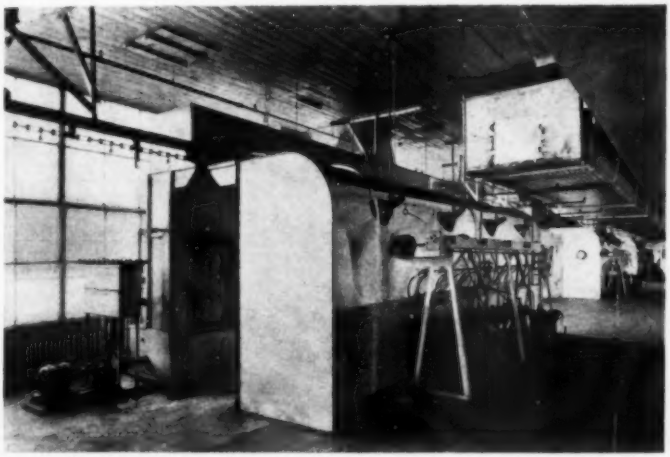


Fig. 2—Along the fender and hood painting line, you see a battery of hydro-filter spray booths and an overhead conveyor line. Pressure containers at the side of each booth have different color materials. A motored countershaft drives the agitators in each material container. Filled containers are prepared in a special mixing room.

Fig. 1. Spray residue flows down with the water into a tank on the lower floor where the residue is skimmed off while the water is filtered and recirculated. Following the spraying of the synthetic enamel, the bodies move into an oven where the finish is baked at 255°F. for 1¼ hours. These bodies are now ready for upholstering and trimming, after which any touch-up work that may be necessary is performed. Then they are ready for delivery to the assembly line.

On the lacquer line, after bodies undergo the preliminary cleaning and the application of sound deadener, they pass on through three double spray booths where they receive first, second and third double coats of sprayed lacquer. Following this lacquer spray, the bodies move forward through a long oven where they are subjected to a temperature of 220°F. for 1½ hours. Then the instrument board, door edges and certain other parts are sprayed with the final finish.

The completely lacquered bodies are given a careful wet sanding with No. 360 sandpaper, followed by wiping and force drying; and finally a "Parko" rubbing with power-driven disc polishing wheels. The Parko rubbing is performed with two kinds of discs. A comparatively coarse disc is used to apply the material, and a more fluffy sheep-skin disc is used for lightly rubbing the surface to a high polish. As this work progresses, any rubbed-through or rubbed-thin places are discovered. These are repair sprayed, the bodies are placed in an oven to speed up the final drying.

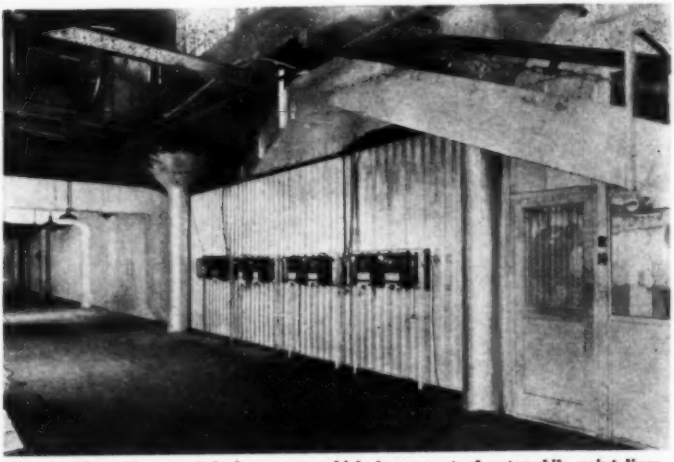


Fig. 3—Alongside one of drying ovens, which forms part of automobile paint lines.

After drying, a light polishing is in order.

At the beginning of the two parallel production paint lines for fenders, hoods and various other outside metal parts, a workman tack-rags all surfaces before, the overhead conveyor moves them into the closed automatic flow-coating booth. On both the lacquer and synthetic enamel lines the primer coat is automatically flowed on from nozzles that spray paint from practically all directions as the parts pass through. The spent material is caught, filtered, thinned if necessary, and used again. The conveyor line passes through the flow-coating booth and travels back and forth around hairpin turns to make five lines of full length passage through a carefully controlled air-drying oven. Passage through the oven requires one hour at 350°F. As these prime-coated parts emerge from the oven they are allowed 17 minutes of added travel to cool, during which time they are carefully hand sanded by operators working in an air-conditioned room.

The synthetic enamel line then follows through more enclosed air-conditioned space in which the overhead conveyor carries the parts through three water-wash spray booths, two men working in each booth, see Fig. 2. In each booth the parts receive a coating of synthetic enamel of the required color. Following the three spray coats of synthetic enamel, the coated parts enter a 5-pass oven 182-ft. long, which has controlled air, with high humidity at the beginning and a gradually drier air toward the exit. Average temperature in this oven is 250°F., and the time required for parts to pass through is about one hour.

On the lacquer line a short period of time is allowed for the

work to cool when it comes out of the prime-coat oven. During this brief time the surfaces receive a light scuffing with fine sandpaper. Then the sheet metal parts move through four spray-coating stations, the first being used to spray on a ground coat of lacquer. At each of the three succeeding stations the surfaces receive a double coat of lacquer. Then the work travels through an oven at a temperature of 190°F. for 30 minutes. After cooling, the parts are placed on bucks for a thorough and careful wet sanding with fine sandpaper. They are then rehung on the conveyor, wiped, inspected, spot sprayed and oven dried. Rubbing and polishing with "Parko" compound, applied and rubbed with power-driven sheep's wool discs, and a final repair spray where needed, are the last operations. The finished parts are then ready for the assembly line.

Insofar as the application of finish coatings is concerned, the various units are completely finished before they reach the assembly line. However, when completed cars come off the assembly line they are driven around to what is called the "doll-up room" where they are minutely inspected for every detail. Here, if any part or area needs it, there is a bit of final touch-up work performed so expertly and skillfully that it is indistinguishable from the adjoining finished areas.

Improved spray heads for handling heavy materials such as the new synthetic-resin enamels are worthy of special mention. These guns atomize the enamels so finely that they lay down smoother and have a minimum of orange peel.

While Studebaker cars are painted in several different standard colors, each car is a one-color job—that is above the chassis which is painted black. No striping or color bands are painted directly on the body, but after cars leave the assembly line and are in the "doll-up" department, narrow bands of color-striped chromium mouldings are pressed into place and anchored firmly and permanently with spring fasteners that fit into small holes in the side of the body, doors and hood.

Fiberloid Corp. Becomes Part of Monsanto Chemical Co.

The Monsanto Chemical Co. and the Fiberloid Corp. have entered into a contract whereby the Monsanto Chemical Co. acquires all the properties and assets of the Fiberloid Corp., manufacturers of cellulose and resin products, Indian Orchard, Mass. Hereafter the former Fiberloid Corp. will be addressed as Monsanto Chemical Co., Fiberloid Division.

Hilo Wins Safety Plaque

Six years of hard effort has resulted in the Hilo Varnish Corp., Brooklyn, N. Y., finally winning the bronze plaque in the New York Safety Campaign. Year after year Hilo's efforts to win the coveted award in the New York State Accident Prevention Campaign just missed the mark, and for five years the certificate for 100% freedom from accidents was their consolation. In 1937 they finished with a perfect score again, and this time they received the well earned trophy.

Bronze plaque offered in New York Safety Campaign is won by Hilo Varnish Corporation.

Reproducing Wood Grain
ON METAL SURFACES—II

A sample of hand-graining walnut heart growth on small steel panel by author.

Second and final installment of an article about practical hand-graining prepared and written by the foreman finisher of a factory where hand-graining is used for decorating several small products of irregular shape and design.

by Meyer Roter

BEFORE ANY permanent coating is applied to a metal surface the article must be free of any greasy film. The ground coating of all colors for wood graining should have a flat appearance. For graining metal articles a synthetic material is recommended. The entire finish rests upon the ability of the ground coating to stand up. Synthetic colors give strong adhesion to the base metal and resist a great deal of handling abuse that would ordinarily cause defects in the finish. If lacquer colors are used it is advisable to first apply a prime coat of lacquer. This will hold up the ground color much better.

For a better finish, where labor can be expended for quality, the ground coat could be sandpapered with a fine water-sandpaper. This operation will smooth the ground-coated surface and give better adhesion for the graining material.

Mahogany Ground Colors

In the mahogany finish as well as in certain other wood finishes, there are many color combinations which give different effects. Essentially they are light and dark mahogany.

The ground color of light mahogany is a bright red, or tan

mixed with a little red to give a slight reddish hue. For light mahogany a Vandyke brown is used as a graining material in either oil or distemper colors. The graining material is thinned down with the proper solvent to workable concentration for graining. Water or vinegar is generally used as the solvent for the distemper color; and turpentine for the oil color. It is then rubbed in on the ground color over the entire surface of the article, with a brush or a sponge.

Mottling; Combed Grain

One kind of graining can be produced by mottling the surface with the stippler. Another effect can be produced by making a combed grain. This is done with the overgrainer or a brush which has been combed out. The brush is drawn across the surface in a slightly wavy fashion. A sponge can also be used to develop a good grain if the proper procedure is followed in working it out. The whole idea of light mahogany is to bring up the different shades from the ground color in the graining operation.

Realistic striped mahogany skillfully hand-grained by author on a steel panel.

In dark mahogany the ground color is a maroon or "mahogany color," as it is called. The graining material is made up of ivory black in distemper or oil color. The graining material is prepared in two concentrations; one very dilute, the other concentrated to graining thickness. The surface of the article is sponged or brushed over with the dilute material and then the grain is applied with the concentrated material.

Dark and Light Mahogany

On dark mahogany the opposite effect to that of light mahogany is produced, for here the grain is put on instead of being brought out from the ground color. In the graining, a pipe brush is used or a brush similar in purpose. Long wide stripes are drawn out in a slightly wavy fashion. These veins are then blended with fine lines with a fine overgrainer or badger hair blender.

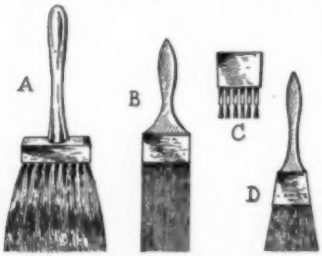
The mahogany grain is coarse and broad and seldom shows fine graining such as heart growths. After the graining process, the article is ready for lacquering if it has been done in distemper color. If the oil color is used the article must be allowed to dry for a few hours, putting it in the oven if possible. The article can be lacquered with either clear lacquer or flat lacquer. Clear lacquer gives a glossy finish while flat lacquer

gives the appearance of a waxed wood.

Walnut Color and Finish

A walnut finish seems to be the most desired of the wood finishes because of its medium color which harmonizes with most surroundings. This finish can also be produced in different effects by different color combinations. A light walnut is produced by spraying the ground coat in ivory color. The graining material used is made up of burnt umber. Graining material of medium concentration is rubbed in on the ivory ground coat. The surface is then stippled and the pipe grainer is used to work out the heart growth and veins.

After the grain has been carefully worked out it is blended with the badger-hair blender. The grained article is then lacquered with either clear or flat lacquer.



A few of the brushes used for reproducing true wood grain effects on metal products.

Brush A is the badger hair blender, used either as the first step or last step in the graining operation.

B is the long-bristle hair stippler or flogger, used to produce coarse pores.

C is a pipe brush over-grainer. It is used to make or work out the broad veins and heart growth.

D is the fan over-grainer, used to produce fine vein effects. It can be obtained in many sizes and it also is cut to size accordingly by the operator.

Details of Graining

Another walnut finish of medium color be produced by using a light tan or buff color for the ground coat. On this finish two graining mixtures of burnt umber should be used of different concentrations. The less concentrated is used for rubbing in and stippling the surface, while the more concentrated material is used to work out the grain properly.

A simple grain can be produced for such work as umbrella handles, bed posts, etc., with this color combination: After the ground coat is applied, the procedure is to saturate a sponge or cloth with the burnt umber graining material and draw the stroke down the object while slightly turning the graining back and forth for a wavy effect.

On panels various oval effects are produced by the operator, using the graining material and an ordinary combed-out paint brush or sponge. Some of these effects, though pleasing in appearance, could hardly be called a wood grain. This is all for a simple and quickly-applied grain.

For a dark walnut, Vandyke brown is used as graining material, or the tan ground color. The procedure in working this grain is the same as that for light mahogany. After rubbing the graining material the idea is to bring up the grain from the ground color through working out the variation in shades. Mottling and comb effects will show up very well.

After the proper graining operations the article is then lacquered with either clear or flat lacquer, according to the desired walnut finish. The glossy walnut finishes can be improved in

smoothness and luster by sandpapering the lacquer finish with a fine wetting or water sandpaper, and finally giving another coat of lacquer.

Maple Color and Grain

An attractive maple finish is produced by using either white or ivory as a ground color. White

Attractive striped walnut expertly handgrained by the author on a metal panel.

produces the lighter maple finish while ivory gives a sort of a pink maple finish. There is very little distinct graining noticeable in maple, therefore the effects must be produced by a graining material that blends into the ground color.

The grain can be discerned by its wavy and slightly shady outline. For this purpose it is best to have two graining materials, neither to be too concentrated. One is made up of raw sienna and a little white; the other of white and just a drop of ivory black to give a light gray color. The gray mixture is rubbed in on the ground color and stippled. A few thin lines are then drawn across the surface with the sienna mixture, using a camelshair pencil brush. A small slightly moist sponge is used to draw down alongside of these lines, forming a grain from the ground color.

Birds-eye Graining

Birds-eye maple grain can be produced on this lighter effect by touching the grain with the finger tip in a few scattered places, or by using the pencil brush with a thin strip of paper rolled around its tip.

Another grain effect on maple can be applied by rolling the flat part of the camels-hair pencil brush across the surface of the article in graining process. After the graining for the maple finish has been completed, it is lacquered with colored lacquer containing tan dye color. The dyed lacquer gives the final maple finish.

The shade of the maple can be controlled by the proper addition of dye to the lacquer. It should be measured in drops, as the slightest addition changes the color of the finish. This dye is sometimes called maple or walnut dye or just brown dye. In this work, good judgment is necessary to determine the proper dye for the finish.

Concluding Remarks

The foregoing information on mahogany, walnut and maple finishes is not intended to include all of the methods of graining, as that would be impossible. My information is meant to introduce the principles of graining to as many as are interested, so that it

may be mastered by practice and experiments.

When the principles have been mastered, then many other wood finishes can be produced. These finishes make good combinations on articles with metal finishes of chromium, polished brass, colonial brass, gold, silver, bronze, antique finishes, etc. It is the ability to combine them properly that develops their richness and pleasing effect.

Editor's Note: An article on the reproduction of genuine wood grain and color by mechanical means will be published in an early issue.

Charter Oak Finish

FURNITURE manufacturers who have experienced difficulty in finding a way to use up wood that has dark sap streaks in it, will do well to consider the charter oak finish, and in this way use up lumber that would ordinarily be discarded as scrap.

A charter oak finish, being much darker than the ordinary oak finish generally used, will naturally cover the dark sap streaks so that they are not noticeable.

The procedure for applying a charter oak finish follows:

Sand the bare wood to the desired smoothness; then apply a rich brown oil stain. This stain can be brushed on evenly—or better still, apply an even coat with a spray gun, using a low air pressure, say between 35 and 40-lbs. Allow the stain to set up well; then wipe across the grain with a clean cloth. Allow the stain to dry thoroughly; then shoot on an even coat of wood lacquer that has been reduced slightly. Allow the lacquer to dry thoroughly; then sand. Next, brush well into the pores a solution consisting of one pound of drop black ground in japan dryer to a gallon of turpentine or a good grade of naphtha gas. Allow this coat to set up for about eight minutes under ordinary conditions; then wipe off across the grain with a clean cloth. Allow to dry thoroughly; apply two coats of clear wood lacquer, allowing plenty of drying time between coats.

When the final coat is thoroughly dry, knock off any pimples with a light steelwool rubbing. Finish up with a brisk polishing, using rubbing oil.

You will note that by using wood lacquer instead of varnish to produce this finish, you will get a finish that is quite hard and will stand a lot of abuse.—H. H. GLINKE.

John H. Mills of Hilo Dies

The death of Mr. John H. Mills, Director and Vice President of the Hilo Varnish Corp., Brooklyn, N. Y., occurred at his home in Garden City, L. I., N. Y., on March 12. Cause of his death was pneumonia. He joined Hilo in 1885 and remained active until a few days before his death. He was widely known in the paint industry and devoted much of his time to the development of varnish products for use in the ink and printing trades. He is survived by his widow and one daughter.

John H. Mills, Director and Vice President of the Hilo Varnish Corporation, Brooklyn, N. Y. Died Mar. 12.

Skydart—A Lockheed cabin 'plane, Model 12, 8-place (6 pass., pilot and co-pilot).

Aircraft Finishing

BY JACK EATON
Foreman, Finishing Dept.
Lockheed Aircraft Corp.

OUR FIRST FINISHING problem is protection against all forms of corrosion. All metal and alloy metal surfaces are plated or painted, generally both, and passivation is used extensively on stainless steel. Zinc chromate P-27 primer, a corrosion inhibiting primer, is used throughout the aircraft industry for all varieties of alloy metal surfaces including aluminum, duralumin, alclad and magnesium, as well as cadmium-plated parts. The new P-27-B zinc chromate primer meets both U. S. Army and U. S. Navy specifications, and is specified on all U. S. Government aircraft now being constructed.

All metal and alloy parts that are primed with this type of inhibitive primer must be absolutely clean for good adhesion. Any solvent film or residue that has been left on the surface will cause lifting or scaling, therefore lacquer solvents are a poor cleaning agent. Any cleaning or neutralizing agent that is soluble in water, with a warm water rinse, is preferable—except in case of exposed bearings or parts that might be affected by water. In this case a high-test petroleum solvent is used.

After metal aircraft parts are primed, they are generally coated with aluminum-pigmented lacquer, which is mixed in fresh batches each day. The reason it is mixed fresh each day is due to the fact

that clear lacquer, after it has been pigmented with aluminum paste (320-mesh is generally used) takes on a grayish cast if allowed to sit too long. Other parts are painted after assembly or after fabrication.

Interior Finish Important Too

As our 'planes are built for airlines and private owners, we must consider the interiors and finish them as serviceable and harmonious as possible. All interior hardware, air ducts, special equipment and furniture are matched to the interior trim, unless the customer specifies some different color combination.

On all wood furniture, which is made of thin plywood about 3/16 in. thick, the following method is used: Apply one coat of wood sealer, scuff with fine sandpaper, apply two coats of synthetic-type surfacer, sand to a smooth finish, apply four coats of colored lacquer, gas or solvent sand, apply two wet coats, and rub to a smooth gloss.

We have recently installed in our shop "Paint Production Laboratory" which carries both lacquer and synthetic enamel. This set-up has worked out very well as it makes practically any color available in either lacquer or synthetic enamel. The installation consists of an iron rack frame carrying 16 one-gallon cans of lacquer and 16 two-gallon cans of synthetic enamel; also a complete set of master mixing color books. All colors are mixing colors, including the synthetic enamels. The drier is in a separate container.*

* Further information about this color mixing equipment, as submitted by the company that supplies it, follows:

This development is in the form of a newly designed machine for mixing, in the paint shop, in any required color from a standard group of base mixing colors. As set up for the paint shop trade, this machine consists of a simple framework which supports 16 one-gallon cans of base lacquer colors or 16 two-gallon cans of base synthetic enamel colors. By means of a master formula book and semi-automatic gauges and valves, it is possible within the space of only a few minutes, to prepare on this machine any color for any model of any American automobile since the 1933 models. In the case of the synthetic enamel machines, all standard truck colors can be prepared as well as colors for a wide variety of passenger cars.

The manufacturer supplying the equipment, of course, prepares the base mixing colors and, through a unique manufacturing process which assures constant tinting strength, makes certain that when the given formulas are properly followed, the color is an exact match for the original factory color desired.

Now, a secondary use for this machine is rapidly developing under its own momentum. With the almost limitless variety of colors that have been used on all passenger cars since 1933, many manufacturers are finding this color machine highly suitable for use in preparing either lacquer or synthetic finishes for their products. The advantages are obvious. Very little, if any, inventory is required. The preparation of special colors is vastly simplified. Any color that has been once used can be repeated in its exact shade without any particular effort or trouble.

Cabin Chairs; Bake Finish

When painting interior cabin chairs, the beading is buffed out prior to paint application, and masked off. Then the seats are sprayed with synthetic enamel without the drier. Then they are air-dried for 15 minutes and baked for one hour at 200°F. This finish is very flexible yet it retains a high gloss and has very good adhesion. One wet coat is generally sufficient. This type of synthetic enamel works out very well as a low-bake enamel. Caution must be taken to avoid the use of too much heat as excessive heat will cause

ENAMEL for Every Surface

For every surface there is one best white or colored finish. When you find the one that is most appropriate for your purpose, most of your finishing troubles will disappear.

The Day Line of Enamels includes, Lacquer, Oil, Synthetic and Spirit types. Each has superiorities in its field. Your requirements may be suited perfectly whether you spray, dip, brush, roller coat, tumble or stencil.

With this wide assortment of materials to chose from, you may select the correct finish from the standpoint of application, sales appeal and durability. Whether your primary requirement is for quality or economy in price, you will want full information.

Day Service-Salesmen can be of considerable help to you in choosing the right finishing material. Mention your requirements and we will submit recommendations. The more information you give us the better we can serve you.

JAMES B. DAY & CO.
CHICAGO

wrinkling in the finish. We use this type of material for all baking purposes, and it is quite successful.

Caution must be observed when applying any type of finishing material over cadmium-plated parts. If a 10% solution of nitric acid (by weight) is used as a preliminary dip, it will be safe to allow the plated parts to remain immersed in the dip solution for approximately 10 minutes. Rinse in warm water and proceed with finishing.

Air-dry synthetics are used on all external markings, such as U. S. Department of Commerce registrations, signs, lettering, and striping.

Synthetic drier is added for all air-dry work. We find that by applying the synthetic enamel directly to the metal without priming, better adhesion is obtained and there are no primed edges showing after the tape is pulled off.

Masking Tape Used Extensively

Masking tape plays a very important part in aircraft finishing. All sign work, stenciling, striping, and even designs are put on with masking tape. When masking tape is applied by an expert, very good results are obtained. We have been using the masking tape system for the past 8 years and I believe we were the first to use this process over any large surface to any great extent. Our work has always had clean-cut edges and attractive designs.

The foundation of good sign lettering and striping with masking tape depends upon an adequate proper application. Tape must be properly laid and rolled down. After tape has been applied, we recheck all work and then follow up with an alcohol wash to insure good adhesion. Whenever a synthetic finish is sprayed over masking tape, the tape should be pulled from the surface immediately after spray application. This makes it possible for all edges to flow and flatten out. Caution must be taken to avoid pulling tape over painted surfaces—which can easily happen on large surfaces.

After the tape has been pulled off, we clean up and wipe off all residue and excess gum deposits left from the tape. If tape is pulled off as soon as possible after spray application, there is less chance of there being any gum deposit or fatty edges. Masking tape should never be applied during wet or damp weather, or on metal that is not at room temperature, as it will adhere to the metal and will cause slipping.

We have tried to use the decalcomania and silk-screen methods but neither one has worked out very well on the exterior of our 'planes. Owing to the fact that our 'planes are all fabricated with alcad or duralumin metal, we have rivets to contend with, and as they are very plentiful, the decalcomanias will not lay flush with the skin; and they require a touching up on rivet heads and a coat of clear varnish after they are applied.

Wrinkle Enamel

Last but not least comes our best friend—wrinkle enamel for finishing certain interior equipment. At the present time we are using a nationally known make of "art metal" wrinkle finish which we bake in a 6x10-ft. electric thermostatically controlled oven. We

OXFORD
VARNISH CORPORATION

directs attention
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INDUSTRIAL and
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PAINTS
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PRIMERS

Color and design engineering of individual and distinctive finishes

DETROIT, MICHIGAN

had some trouble with this type of enamel when it was supplied by other manufacturers, but since we started using the present brand of material we have had very good success. The texture is always the same, with a medium amount of of gloss. Our shop practice includes the spraying of varied colors over the wrinkle to match equipment already purchased from other manufacturers.

In spraying lacquer colors over the wrinkle enamel, caution must be taken to avoid spraying a wet coat, as this will cause the wrinkle to flatten out. Fog coats are preferable. Through the use of wrinkle enamel lacquer colors, and buffed and plated metals, some very attractive designs can be worked out. Whenever using masking tape with wrinkle enamel, care must be taken to pull tape from the work as soon as possible after spray application, as wrinkle enamel tends to string. However, a competent operator, with some skill in handling wrinkle enamel, should have no difficulty.

In closing this short article to your "Little Big Book," my last words toward a good finishing job are: A skilled operator; a clean surface; a good finishing material; a tack rag; and a copy of INDUSTRIAL FINISHING.

Du Pont Co. will Erect $500,000 Building for N. Y. World's Fair

"The Wonder World of Chemistry" will be the name of the du Pont Co.'s $500,000 air-conditioned exhibit building to be erected for the New York World's Fair in 1939. Walter Darwin Teague is the designer. It will house a series of dramatized exhibits depicting the social contributions of the modern chemical industry.

The structure will have as its central feature a huge semi-cylindrical shell, 70 ft. high, decorated with one of the largest mural paintings ever executed. The shell wall partially encloses a court affording entrance to the building, centering about a 100-ft. tower typifying the spirit of chemical research.

The mural will be a symbolic one, portraying the significance of the chemist in industry, transportation, agriculture, mining and other fields. Its figures will be painted on an heroic scale, some being over 30-ft. in height. The tower, a formalized representation of a chemical apparatus, will make use of color, active liquids in circulation and changing lights to achieve the spectacular effect sought.

Designed along strictly functional lines, the building itself will be finished in stucco, painted white, with blue walls at the rear and sides. It is also semi-circular in shape with set-backs accentuating the plan.

Inside the building, visitors will follow a long circular corridor designed to carry out the atmosphere of a laboratory. Chemical products and processes will be displayed here, and explained by commentators. A number of animated displays showing actual chemical processes will be shown. The hall leads ultimately to a large central room where the theme of the exhibit will be summed up in terms of the practical application of the industry in influencing style, beauty, economics, the home, health, safety and other phases of modern life.

H. C. Ludwig Becomes Vice Pres. of Williams-Hayward Varnish Co.

Mr. H. C. Ludwig has been appointed Vice-President in charge of sales for the Williams-Hayward Varnish Co., Chicago, Ill., manufacturers of finishing materials.

Mr. Ludwig has had an excellent and varied experience in wood and metal finishes for all purposes. He was formerly associated with the Williams-Hayward Co. during the years of 1924, 1925 and 1926; was formerly director of sales for James B. Day & Co., Chicago, and spent many years with the Martin-Senour Co., traveling out of both their Chicago and Brooklyn offices.

Mr. Ludwig is well known to the furniture, metal and jobbing trade throughout most of the country, having had personal contact with most of the trade and is highly regarded in the industry.

"Built to Endure".. Finished to Last!

A sturdy combination, geared to good, hard work—Cletrac Crawler Tractors finished with S-W Kem Enamell

Here's a finish that meets with flying colors Cletrac's demand for beauty plus ability to "take it" under the stiffest of weather and working conditions.

On the finishing line, Cletrac finds S-W Kem saves in application. Its fast-handling cuts labor costs . . . its exceptional coverage reduces material needs.

Let the S-W Finish Engineer give you the facts about this and other S-W Finishes. No obligation. Write The Sherwin-Williams Co., Cleveland, Ohio and all principal cities. *See our catalog in Sweet's.*

SHERWIN-WILLIAMS INDUSTRIAL FINISHES

Causes of Poor Finishing

BELIEVE IT OR NOT... SORE HANDS

by H. H. Glinke

*If your magazine turned to beauty culture, that surely would be unusual. Some "Hard as Nails," finishers might even say, "*INDUSTRIAL FINISHING *has gone Sissy." But when one considers the number of sore hands in the trade it becomes a major problem, and surely a timely article would be appreciated by the countless thousands of finishers who are trying everything that is mentioned to heal their very sore hands.*—THE AUTHOR.

A FINISHER with sore hands reminds me of a pugilist who hits too hard and breaks his "dukes." These men are usually willing enough workers but their hands just can't take it and they pull their punches, so to speak, when it comes to digging in. The consequence is that when a finisher is thus handicapped it is natural for him to slight his work.

Every wide-awake foreman knows that preparing the surface is vitally important. Most rejects can be traced to a poorly prepared under surface. It is only logical that a finisher with gas-burned or thinner-burned hands will be reluctant to literally wade in and gas-sand or water-sand as it should be done. Result: The cost will exceed the amount allowed, or the sanding operation will be slighted, causing a reject. In either event the company is the loser.

Finisher's Personal Efficiency Is Company's Business

Some companies take the attitude that the condition of a finisher's health is his personal concern only, but I often wonder if they consider the amount of inefficiency that results from this attitude. My deduction is that the workman does the suffering and the company pays the added expense.

So what is to be done? I believe each foreman should make it his concern to see that his workmen are properly instructed and protected. A respirator should be used at all times when working around paint spray. A workman would naturally refuse to drink a spoonful of paint as a tonic, so why should he breathe the finely atomized paint? He should be advised to bathe daily so that his skin will be free from paint, thus allowing the pores of his skin to function correctly.

One might ask: "What does bathing or the use of a respirator have to do with the hands?" But

Proving Our Claims for

66E-656

Air-Dry Aluminum Synthetic

A reputable manufacturer called unexpectedly at our Laboratory recently. He was in urgent need of having some samples finished in aluminum. They were given a single dip coating of this material and were sufficiently dry to take away in about 20 minutes.

He was astounded at the brilliant, smooth finish produced and the absence of all sags, runs or drips on his odd-shaped product.

Manufacturers whose production schedules do not permit long, high temperature baking, are invited to conduct their own tests with this material. It has excellent adhesion, durability and weathering qualities, and is equally suitable for spray application.

The Stanley Chemical Co.

EAST BERLIN, CONN.

Lacquers — Synthetics — Enamels — Japans

A Subsidiary of THE STANLEY WORKS, NEW BRITAIN, CONN.

it is easy to understand that a healthy body will naturally be more resistant to infections.

Soiled or Perspiring Hands Ruin Many Finishes

Now about the hands: they should be washed often and kept as clean as possible, even during working hours. Most foremen are aware that dirty greasy hands ruin finishes, so the benefits of cleanliness are twofold — better work and healthier hands.

I have noticed that workmen who wear gloves at work are bothered with skin trouble to a greater extent than those who do not. It seems that the gloves cause the hands to perspire and, with the pores of the skin open, any dirt, grease or paint that soaks through the gloves is free to penetrate deeply into the skin. When the gloves are removed and the hands cool off, the foreign substance is trapped in the pores. This invariably leads to serious trouble. On the other hand, it is difficult to turn out a first-class sanding job while wearing gloves. Also, I have noticed that workmen who wear gloves while spraying do not have perfect control of the spray gun.

When working with acid a workman should wear rubber gloves, but I advise the use of gloves sufficiently large to allow ventilation and unimpaired circulation.

Skin Infections and Remedy for Same

I have seen the varied effects which the use of finishing materials have on workmen's hands. Some are merely inflamed from contact with gasoline or thinner; others have blister infections; still others are cracked to the bone. When a workman's hands get so bad that he cannot sleep, he naturally goes to a doctor or to his druggist for relief. They usually recommend some cure for athlete's foot or a similar skin infection. Usually these preparations contain a large percentage of alcohol.

Now you and I know that alcohol will cause added burns in itself, so why burn one's hands still more? If we apply their remedy we find our condition worse. If we go back they may prescribe some sort of petroleum jelly to keep the hands soft. Here they are on the right track, but petroleum is one of the things we want to avoid. We can try lotions and get results. With faithful treatment our hands will improve, but the lotion will have to be applied often enough to keep the hands moist.

I find the best results are obtained when you clean every bit of the dirt and paint from your hands and then apply a greaseless cream, or any salve that is healing but not harsh. Keep away from treatments that are too caustic in their action. The best time to treat your hands is over the week-end when you can apply the treatment often, but by all means do not neglect them during the week.

New Synthetic Paints

TO THE average layman, paint is paint — a prosaic though probably necessary part of his everyday life. For many years paint was just that—old fashioned and unchanging. It was smelly, slow drying (contrary to the advertisement on the can label) and

PAGES REMOVED

not very weatherproof. It was made largely from natural products such as linseed oil, rosin and turpentine—ingredients which had been fundamentally unchanged in 50 years. During this time chemistry was an unknown science as far as paint was concerned, and the chemist had no place on the paint makers payroll.

Then some chemist discovered that a so-called alkyd resin, produced from glycerine, synthetic phthallic acid and soya bean oil, made into a paint, was quick-drying and durable beyond the old master painters wildest dreams. Today the alkyd line of resins forms a major division of the paint industry.

Henry Ford has done much to promote this by his research and development of the now famous soya bean, a necessary ingredient in this type of resin. His automobiles are now finished with one coat of attractive alkyd enamel, sprayed on and baked a few hours —a far cry from the weeks it took to paint a car years ago. Many of the metal refrigerators of today are finished with this same synthetic enamel which is permanent in whiteness and unaffected by extreme humidity conditions. These are but two examples of a long list of applications.

Another brand new line of paints are those made from Bakelite or carbolic acid and formaldehyde. These paints really will dry in four hours and will stand alcohol or sea water almost indefinitely without turning white.

The relatively new vinyl resins have found novel use on the inside of almost every beer can sold today. Besides these there are countless resins which are still in the laboratory stage but which will, by research chemists, undoubtedly be brought into use in the industry. It is a safe guess that probably over half the paints, varnishes and lacquers made today have in them some form of synthetic resin.

All of this should be most interesting to the young man of today who is wondering what line of endeavor he should follow. Here is one which is growing lustily . . . . The demand for young men technically trained in industrial chemistry far exceeds the supply as the companies making synthetic resins and paints are constantly enlarging their staffs. —J. W. McHUGH.

Rudd Lacquer & Sealer Corp. Appoints Mr. Ratcliff

The Rudd Lacquer & Sealer Corp., 80 Cliff St., New York, N. Y., announce the appointment of Mr. M. Ratcliff, 112 E. Lakeside, Madison, Wisc., to their sales staff. His territory will include Wisconsin, Eastern Minnesota, Northern Michigan and Northern Illinois. He is well known to the trade in this territory where he has worked during the past 12 years.

Author of "America's 60 Families" Retracts du Pont Statements

Ferdinand Lundberg, author, and the Vanguard Press, publisher of the of the book "America's 60 Families," have publicly retracted the statements in that book charging fraud against E. I. du Pont de Nemours and Co. with respect to contracts which that company had with the U. S. Government during the World War. They have acknowleged that these statements were unfounded and have agreed to expunge from future editions of the book the matter complained of. In view of this vindication, the du Pont Co. is dismissing its suit for libel against the author and publisher.

However, it has been stipulated between the parties to the libel suit that the du Pont Co., by dismissing that suit, does not admit the correctness of other statements in the book which relate to du Pont Co.

Beautiful Furniture

FINISHES ON DIFFERENT WOODS

by Orrie D. Maal

Methods and schedules suggested for producing various attractive finishes on solid woods and veneers — using, in addition to the genuine woods, such substitutes as gum, magnolia, birch, elm and ash, to produce finished effects known as American walnut, oriental walnut, mahogany, blond and honey maple, blond, amber, golden and fumed oak . . . in modern furniture.

NOW THAT the trend of furture seems to be going back to better finishes (due partly to higher labor and material cost), and having a request for an article on better finishing, I will try to describe in plain words the finishing of different woods, and the materials used for a good finish.

As we all know, design and finish are the outstanding items on any article. The first glance usually tells the story between good merchandise and shabby goods. Several manufacturers still do not seem to realize that cheap material, costing a little less than good material, takes just as much labor to apply—and often times more because the finishers may have to apply three coats where two coats might be all that is necessary with good materials. Also, the good material will probably rub and polish easier, and it will surely last longer, and very likely it will improve the sale of the article. Even cheap furniture is improved by spending a few cents more on the finish.

Where I am located (in Los Angeles, Calif.) I am in a position to see practically all grades of furniture manufactured throughout the United States, and also many pieces from foreign countries. However, taken on an average, there is a lot of improvement in the last few years, but it is a long way yet from what it ought to be, especially so as to little details. In this article I will try to explain what I mean.

Different Solid Woods Used With Expensive Veneers

First of all I will try to classify some of the solid woods used in combination with walnut and mahogany veneers, so the finisher will know which of them will fin-

LACQUER ENAMELS

Among the many industrial finishes we make and sell to a varied list of manufacturers is our line of Lacquer Enamels. These are furnished in a number of different types and in many standard colors as well as special shades for individual requirements.

Egyptian Lacquer Enamels may be had in glossy, semi-glossy, and flat finishes and are supplied for Spray, Brush, or Dip application. Where special undercoats are required, there are several different types of Primers and Fillers for this purpose.

Egyptian Lacquer Enamels are used extensively in the finishing and refinishing of all kinds of metal, wood, leather, fibre, glass, paper, and for a host of industrial products too numerous to mention here.

For further complete details and available colors, send for booklet "Egyptian Lacquer Enamels." It's free for the asking and will be sent promptly if requested on your letterhead.

The Egyptian Lacquer Mfg. Co.

Rockefeller Center

New York, N. Y.

EGYPTIAN FINISHES

ish up about the same, using the same stain.

Manufacturers are using the following solid woods in combination with different veneers: Sap gum, red gum, American quartered gum, soft maple, birch, magnolia, hard maple, Philippine mahogany.

I do not mention solid mahogany or walnut, because most finishers know that these woods finish up about the same as their respective veneers. About the only difficulty these might give is in the treatment of sap in walnut or in the treatment of the mahogany when in its natural state. It is already darker in color than the finish required.

American Walnut Finish on Gum and Magnolia

To start with, let's take plain American walnut first. This is frequently combined with walnut veneer tops, fronts and ends, bed panels and solid-wood frames. Sap gum, red gum, American quartered gum and magnolia are often used for solid wood frames which are then finished in the walnut color. Sap gum and magnolia finish about the same, and red and quartered gum about the same. If there is a mixture of these woods, like many factories have, shading or glazing will be required to bring out an even finish.

Supposing we have to finish a suit that has walnut veneers and frame work of sap gum or magnolia, finishing it in the average American walnut finish. I would advise the following: Pigmented oil wiping stains, permanent stain or water stain; never a penetrating oil stain as the latter will penetrate deeply into soft spots and will make the wood look like a spotted adder. I think many a manufacturer has had this experience.

Staining; Sanding; Filling

Of these stains the permanent stains naturally are the best and most economical because they require no wiping. The sprayman can practically even up all of the wood while applying the stain. The water stain requires a washcoat and sanding, therefore it takes more material and labor. However, the finisher can use whatever he desires. What I am after is to make a uniform color before filling.

Some finishers or their bosses may want to stain the walnut. It depends a whole lot on the darkness of the veneer. Whatever is done, try to stain the solid wood up to the color of the veneer. If the veneer is not stained, let me give you a tip on how to arrive at the stain for the solid wood. Take a rag saturated with naphtha or gasoline and wet the veneer. The color of the veneer, when wet this way, will be the color of your stain; also the strength. Some companies want the solid wood a little darker than the veneer.

After staining, apply your filler coat. This should be a good filler and the color should be determined by the color you are trying to arrive at. The best way, of course, is to fill the solid wood as well as the veneer—this for color's sake and uniformity. Apply the filler thin on the solid woods, as it has no pores to fill. After the filler has dried (and, as we all know, this is important as it is the foundation of all good finishes) proceed with the application of sealer

WHEN WOMEN WORE "RATS"

My lady held her crowning glory in place with a multitude of wire hairpins finished in Black Baking Japan . . . . Today she restrains her shorter locks with bobby pins —these, too, finished in Baking Japan, black or brown.

A prominent manufacturer of hair and bobby pins has used Hilo finishes for both purposes for 16 years. They have given satisfaction over this long period of time because:

They are easily adapted to any method of application.

They bake quickly to a hard finish—glossy, eggshell or dull.

They adhere firmly to the metal.

They are tough and durable.

They are unaffected by the natural oils of the hair.

There is a Hilo Baking Japan especially suitable to your needs. Send for a free sample and bulletin describing Hilo Enamels and Japans.

HILO VARNISH CORP.

42-60 STEWART AVE., BROOKLYN, N. Y.

Boston Chicago

HILO

HILO VARNISH CORPORATION
42-60 Stewart Ave., Brooklyn, New York

GENTLEMEN: We'd like to try a free sample of Hilo Black Baking Japan.

Company.....

By.....

Address.....

City and State.....

IFAP

CHECK TYPE WANTED

gloss — air dry
eggshell — baking
dull — 250° F.
Rip-pl — 350° F.
Crystal

FOR USE ON:

Wood....., Steel....., Cast Iron....., Brass....., Aluminum.....

or shellac and as many coats of lacquer or varnish as are desired.

Finishing Oriental Walnut

Now for Oriental walnuts: The same procedure applies to the solid woods; in some cases here soft maple is used for the solid woods as it has a good grain for this. The veneer, however, is hardly ever stained. As a matter of fact, some manufacturers wash-coat this with a thin coat of lacquer sealer or shellac to prevent the filler from darkening the wood. This is usually done to hold the original color when this veneer is used as an overlay or inlay on other woods—and this applies to zebra woods and others. The finishing of this wood is the same as on American walnut, except in some cases where no color is wanted in the final coats. In that event, only water white lacquer or white maple varnish should be used.

Butt and Crotch Walnut

Naturally, some manufacturers use butt or crotch walnut in combination with these other woods. Of course there are many ways of arriving at the desired results on the butt or crotch, but my own experience has taught me, and especially so on woods from the heart or stump of the log, that applying filler on these woods first, then shading to the desired color with clear lacquer stains or permanent stains, is the best as there is no chance of cracking if applied directly to the wood. The "filling first" method will also bring out all the beauty in the wood, if it has any to bring out. Naturally this applies to crotch mahogany also. If a still lighter color is wanted, wash-coat the wood first with thin shellac or lacquer sealer; then fill.

Fillers and Filling

Now in regard to the filler, we all know that filling is the important item for a body finish, but there are a lot of different fillers. Some fillers will leave a dark pore and still not much color on the rest of the wood. Other fillers will color everything and still leave what we call a gray pore when the final coats are applied. I am not going into the technical end of the game, but the finisher can test these things himself or take this up with his supplier of filler. The best filler is none too good—and remember, the darker the color of the finish the more important is this question of gray pores. (Ever see a nice piano or piece of furniture, especially mahogany or dark walnut, with gray pores or a gray background?)

Part II of this article, to appear next month, will take up maple and oak finishes in the blond and amber effects . . . and will emphasize the importance of furniture being given an attractive dress-up finish, correct in every detail.

Geo. E. Watson Co. Catalog

The spring catalog (Golden Anniversary issue) of Geo. E. Watson Co., 164 W. Lake St., Chicago, Ill., recently distributed to the trade, contains 84 pages bound between heavy paper covers in yellow, red and black. The catalog illustrates, describes and quotes prices on practically everything the industrial finisher, refinisher, painter or decorator uses in the way of materials, supplies and tools. Alphabetically the list runs from Acetone to Zincs in Oil. Order blanks and special offers are included.

Beauty CAN BE ACQUIRED

Some women are born beautiful, but many of the women who are rated as gorgeous creatures acquire their loveliness by conscious effort.

Smart women invariably turn to the deft application of cosmetics to insure that charming clearness of skin and touch of color so necessary to beauty. It's a finishing problem just as the beauty of your commercial product is a finishing problem.

Beauty begets admiration . . . admiration begets popularity . . . popularity establishes leadership, whether it be woman or product. Our creative artists have contributed new beauty and leadership to many products. It is very likely they can be of service to you. There is no charge to reputable firms for our creative service. Will you write?

ROCKFORD VARNISH COMPANY

Manufacturers of Finishing Materials

ROCKFORD, ILLINOIS

Eclipse Spray Gun

A new spray gun, known as the Eclipse "Gat," has been announced by Eclipse Air Brush Company, Inc., Newark, N. J. This new spray gun embodies the power pressure operating principles of all Eclipse equipment for economy and results.

Many new features and improvements have been included in the construction of the latest Eclipse gun. It weighs only 23-oz. complete and is

Simple, efficient, attractive

manufactured of heat-treated Dowmetal which is one-third lighter than aluminum, but has the tensile strength of brass. It can be operated with either internal or external atomization. According to the manufacturer, impartial tests have shown the "Gat" to be more than twice as fast as any comparable equipment.

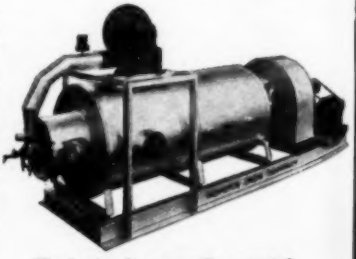
Nozzles are available for all purposes and materials; widths of spray vary from 1 to 36-in., depending on requirements. Heavy paint can be sprayed at lower pressure, and many materials hitherto considered outside the capabilities of spray equipment have been successfully applied with the "Gat." Excellent results have been obtained with nitrocellulose and synthetic lacquers, as well as with paints, varnishes and enamels.

The Eclipse spray gun is designed for exceedingly fast work and for perfect finishes under all conditions. Light, easily handled, and producing sensational results with all kinds of material, the introduction of this new spray gun marks a long step forward in the development of more efficient spray painting and finishing equipment.

What's New . . .

Oil-Fired Heater for Ovens

Here is a direct oil-fired heater that can be installed in new or old ovens, converting same into modern high-speed economical units at reasonable cost. According to the manufacturer, the Despatch Oven Co., Minneapolis, Minn., this heater is entirely self-contained, is simple in design, may be easily and correctly operated by an average workman. All of the products of combustion in the heater are thoroughly mixed with fresh air and recirculated air under positive control. Then a fan forces this heated air into heat-distributing ducts which are properly arranged in



The heater is externally mounted.

WOOD LACQUERS

There are no spectacular developments in wood lacquers. There is, however, the accumulation of years of testing and steady improvement resulting in our present line of gloss and flat lacquers developed for the wood working industries.

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In addition, the large volumes of air passing around the parts remove moisture and volatile quickly, and transfer heat more rapidly. Processing time, in some instances, is reduced at least 50% so that one oven will do the work which formerly required two ovens.

Multiple Striper

Paasche Airbrush Co., 1917 Diversey Parkway, Chicago, Ill., calls attention to their new multiple striper, the type No. LT, with which it is

Makes 2 or 3 stripes at a time.

possible to apply parallel stripes of two different colors or three parallel stripes, in one striping operation. It is so arranged that the two outside striping nibs may apply one color and the inner nib another color, or all three stripes can be made the same color.

The two outside striping nibs slide back and forth to fit the contour of the surface being striped. Special nibs are designed and built to order to meet the particular requirements of any manufacturer.

This striper may be used in grooves, on edges, on raised portions, or on flat surfaces. It is ideal for horizontal or vertical surfaces. The guide revolves and is adjustable to any position or any surface.

Dust Respirators

The Chicago Eye Shield Co., 2300 Warren Blvd., Chicago, Ill., are offering a new style respirator which has filter units of unique and exclu-

Has large breathing area.

sive construction. They have an effective breathing area of over 45-sq. in. This eliminates fatiguing resistance to inhalation and greatly increases breathing comfort. They are so located they control the position of the respirator on the face. The result is they adjust automatically to movement and compensate for all facial variation.

The exhale valve is placed between the filter units. It is up and out of the way where it cannot rub or catch in the clothing. This valve is non-collapsible and will not shut off exhaled air when the head is bent downward. To enable the wearer to converse without removing the mask, it is furnished with a sensitive diaphragm.

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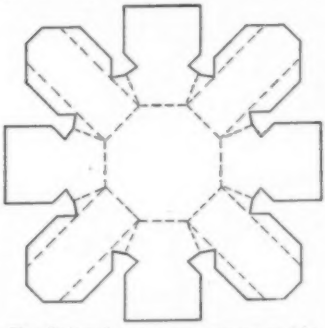
Lacquered Paper Caps to Stick Together

I am sending you three samples of paper milk bottle caps (of the shape shown in the accompanying drawing, mildly creased to fold at the dotted lines). These caps are coated with a high-viscosity lacquer, the lacquer being applied through a hopper and the film regulated accurately by a set control off of the doctor blade. This client has no trouble in application.

Their method of placing this cap over the bottle, as you know, is mechanical and they must depend on getting their adhesiveness



The flattened paper cap measures 6-in. square (7-in. diagonally) and is creased at dotted line so it can be pressed over the mouth of a milk bottle. The tabs fold over one another and are supposed to be glued together by "wet lacquer" when pressed together for a few seconds.

from the lacquer. They lacquer both sides of the cap. Just before the cap gets to the bottle to be capped, the bottom part passes over a solvent pad which is supposed to soften the lacquer just enough to make the overlapping tabs stick together and hold the cap firmly over the top of the milk bottle. After the cap is formed over the bottle, the mechanical folder holds the cap in place about two to three seconds.

The trouble they are having is that after the lacquered caps are a week to 10 days old, they do not get adequate adhesion. They are trying to use the same solvent on all caps. This is where the weakness lies. They are now using better than a drum of lacquer a day and have two more units under construction, which will mean they will use about 100 gallons of lacquer a day. After the lacquer is applied it is force-dried at 108°F. for 30 minutes.—W. S. B.

This is a very interesting application of a new type lacquer for which the industry is trying hard to find new outlets. The weakness in obtaining satisfactory adhesion on lacquered caps that are a week and more old is probably due to one or two, or both of the following factors:

The first factor is that the lacquer has had sufficient time, at the end of a week, to have little if any residual solvent remaining, thereby causing the adhesive solvent to reactivate the lacquer at a much slower rate.

The other factor is that at the end of a week or more, during which time residual solvents in the lacquer film have become dispersed, the lacquer film has shrunk, leaving less of it on the

Questions Answers

surface, by comparison, than would be found on work only one or two days of age. Thus, with less lacquer on the surface, there would be less remaining material to function as a bonding agent.

This second factor probably has more influence in the unsatisfactory bonding than the type of solvent used for reactivating the surface.

The so-called moisture-proof lacquer, which was undoubtedly used on the sample submitted, is hard to stick. Special adhesives should be used for this, and these probably can be obtained from either Goodyear Tire & Rubber Co., Akron, Ohio, or Williamson Glue & Gum Works, Chicago, Ill.

To simplify the process of sticking the tabs of this milk-bottle cap together (over the bottle) I would suggest that you have your client consider the heat-sealing type of moisture-proof lacquer. Heat-sealing would eliminate the messing around with solvent or special adhesive, minimize the possibility of undesirable solvent odors which might contaminate the milk, and you could effect the adhesion just as quickly.

In support of the heat-sealing idea, I am enclosing the cap which I have taken the liberty of tearing in several places and sticking the pieces together by means of a hot electric iron. The lacquer on the cap was probably not designed for heat-sealing, but it has sufficient thermo-plasticity to give some adhesive effect when heated.

The time of heat application was five and ten seconds, respectively. Low, medium, and high refers to the thermostat setting on the iron (the ordinary household laundry type). A good bond has been obtained. The lacquer film has been ruptured to a certain extent, but this is probably because the temperature was too high. However, a lacquer intended for heat-sealing would not require as high a temperature for activation.

Who makes this type of lacquer? Several of the leading lacquer manufacturers who advertise in this magazine. The Editor can tell you specifically, if you insist. —GREGGS PHILLIPS.

Lacquer, Shellac Mix and Work Satisfactorily

On page 53 of March issue, under the heading "Lacquer and Shellac," there is an inquiry from a casket manufacturer, to which Mr. F. R. Boynton replied.

We desire most emphatically to take issue with Mr. Boynton on this subject. The shellac industry through its Research Bureau and a fellowship which its association maintains at the Polytechnic Institute, Brooklyn, has given the subject of shellac and lacquer most careful study during the past three years.

Apparently Mr. Boynton is unaware of the fact that shellac today can be, and is being, manufactured with nitrocellulose and cotton derivatives which make it absolutely compatible for use in lacquer and with lacquer.

Mr. Boynton speaks of ordinary lacquer and shellac not being compatible. This was known at the beginning, when lacquer was introduced, but the shellac manufacturers found through their Research Bureau that it was the heavy wax content in shellac which caused this incompatability.

Our laboratory has developed a sealer, or first coater, or wash

coat—whichever way you care to describe it—which contains either white or orange shellac and which is, in our opinion, far superior to any synthetic-gum sealer, sanding or otherwise, on the market.

Shellac, before the introduction of lacquer, always was used as a prime coater. It is known as being most elastic and having strong binding powers for any finish coat of varnish.

Now that we have learned from experience, by taking the wax out of shellac through a refining process, we can add not only cotton derivatives and nitrocellulose to it but other lacquer solvents, so that when used as a coater or sealer it dries in 10 minutes and can be sanded in 20 minutes.

This coater sinks into the wood. It does not necessarily leave a film such as sealers made with synthetic gums do, but it so impregnates the wood that it is hardly noticeable. However, when the lacquer or varnish is applied the shellac coater holds up two coats almost as well as three coats would be held up by the ordinary sealers. Shellac prevents the lacquer from sinking.

Lacquer over shellac, because of the shellac's elasticity, will not chip nor peel nor check if kept under proper conditions. There are some manufactured lacquers which stand a hot and cold check very much better than others and, of course, we are not talking of cheap lacquers; we are talking of first-class merchandise.

Mr. Boynton further makes the statement that he thinks a lacquer sealer has better body-building properties than shellac. It is our belief that the body-building qualities of shellac are far superior to those of the average sealer on the market.

Shellac coater, as we prepare it, will sand to a satin finish, and we are prepared to disprove Mr. Boynton's further statement that lacquer cold checks over shellac easily when two or three coats are applied.

Shellac, when properly manufactured and prepared for the lacquer industry, is the finest coater that can be produced. This is evidenced by the fact that lacquer manufacturers all over the country are using refined dewaxed shellac as a base in their high-grade gloss lacquers.

A great many of the larger lacquer manufacturers today are very much interested in securing a shellac ester which will shortly be put on the market. This is a patented process, the patent being owned by the United States Shellac Importers Association, and several licenses recently have been issued for its production.

So you can readily see that things have been happening in the shellac industry, of which Mr. Boynton is unaware.—JAMES W. BYRNES, Vice-President, The MacLac Co., Inc.

Referring to the inquiry by "Casket Manufacturer" on pages 53 and 54 of the March issue and Mr. F. R. Boynton's explanation, I wish to add that shellac has been used, and still is used, as a sealer for lacquer and varnish by a large number of progressive and responsible furniture manufacturers who have made a thorough study of shellac versus lacquer sealer.

However, I agree fully with Mr. F. R. Boynton as to the harder

sanding properties of shellac as compared to lacquer sanding sealer. This has been overcome to a large extent by the additions of cellulose derivatives to a specially treated shellac. This new type shellac sealer contains more solids than any lacquer sanding sealer and still sands readily in 20 minutes.—J. F. RUDD, Vice President, Rudd Lacquer & Sealer Corp.

Cedar-Odor Paint

In the March issue, page 65, I noticed an inquiry pertaining to paint that has a cedar odor, to be used in clothes closets to make same mothproof.

There are some compositions now on the market, mainly in powder form, to be mixed with water and applied as a paint. Some of these mixtures contain a percentage of cedar wood flour (ground cedar wood) and retain the aromatic properties of cedar for some time. Others, particularly the oil-base coatings, contain either synthetic or true oil of cedar essence, the strength of which soon diminishes.

There is also a new wallpaper product on the market, made from cedar wood pulp, which has probably more advantages than the other mediums.

Notwithstanding all such precautionary methods, one needs to frequently use an atomizer with a volatile liquid containing a mothproof essential oil; personally, I use petroleum spirits scented with cedar oil.—GEO. WHIGELT.

Several years ago I had an occasion to use such a paint in a closet of my own. I tried something that has been quite satisfactory and probably it would work in this case if certain precautions are taken.

I took a commercial brand of enamel and added approximately one-tenth of one perecnt (.1%) of commercial Oil of Cedar Leaf. The essential oil mixed or was compatible in this particular case, but I wouldn't vouch for its miscibility in all cases. However, a very small amount is used and perhaps no trouble would be encountered. I would suggest that a very small experimental mix be tried to test for miscibility and drying.

This material was very satisfactory. It is necessary however to repaint in the course of time, as the odor will gradually disappear. —WARREN ROSSIN.

Lacquer License and Lacquer Solids

An article in your March issue entitled "The Finishing of High Grade Furniture," by R. Jay Burns, contains some erroneous statements, and we suggest that you publish corrections.

On page 23, the author states that: "The license under which all wood lacquers are made, specifies the minimum price that must be charged for a lacquer in a certain solids bracket." *A reader would gather from this statement that all wood lacquers are made under a license, which is absolutely not a fact.*

On page 24, Mr. Burns states that the price of a 21% solids lacquer and a 27% solids lacquer, made under the license, must be sold at a minimum of $1.50. This is incorrect. Properly worded, this

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should read: *A lacquer containing not more than 21% solids would sell for $1.40, and a lacquer containing not more than 27% solids would sell for $1.50.*

Any intelligent purchasing agent can readily see the advantage of buying the higher priced lacquer, as the 6% variance in the solids is readily noticeable when sprayed.—THE BLOOMFIELD CHEMICAL CO. (% F. E. Bennett).

Maintenance Painting

In reference to an inquiry on page 9 of the March issue, where the F. S. Co. asks for information about processes in which waterproof paint would be used in dairy maintenance work, this company would do well to consider the article entitled, "Preparing Concrete and Plaster for Paint," published on page 65 of the same March issue; and also take into consideration that waterproof paint should not be applied over a damp surface. To test a wall or concrete floor for moisture, merely place a piece of oilcloth on the floor or walls with the smooth side toward the surface to be painted for one week. If no dampness is noticeable paint may then be applied.—H. H. GLINKE.

Color Matching

Will you kindly give us any information you may have regarding a rack that is used for checking color matching? Where we have tried to match some samples we have noted that it all depends on the distance we hold these samples from the eye as to how close the shade may be, and we

thought that you might have some standard for the inclined rack that would give the best representative color matching when observing same from a certain distance.—L. S. Mfg. Co.

In my color matching work during the ten years that I supervised developments, as director of the Duco Color Advisory Service, for the du Pont Company, it was found practical to make use of a special neutral gray background or room so that surrounding areas of color would have a minimum of influence upon the colors being matched.

Color-corrected light of a quality that most exactly simulated ideal daylight conditions was employed. The operator's clothing was covered with a neutral gray apron or coat so that even such remote influences as a bright necktie or shirt would cast no color tinge upon the working surface to influence the eye or impair the accuracy of the color matching.

In all exacting color work of this type it is desirable to view the color from one standard angle at one standard distance. This eliminates the possibility of deviations from absolute accuracy caused by variations in eye angle or eye distance. An angle of 45° has been found satisfactory for the rack holding colors for comparison and the colors should be viewed at the distance of 20-in.

By maintaining uniformity in these conditions we can vastly improve the uniformity of results and thus insure accuracy in reproducing colors years hence.

Of all factors employed in color matching, the light is undoubtedly the most important controllable

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feature. By immunizing the light source from outside light variations through the use of the best obtainable daylight filter glass, we can do much to standardize light intensity and color accuracy. By diffusing the light at its source we can, to a desirable degree, avoid highlights that sometimes develop to distort colors being matched.

As a regular reader of your publication for the last eight years, I am pleased to have this opportunity of contributing some information from the field in which I specialize, in return for the many helpful hints and suggestions I have often found between the covers of INDUSTRIAL FINISHING. — HOWARD KETCHAM, Color Engineering.

Finishing Cocobolo, Rosewood Handles

As a manufacturer of cutlery we use thousands of cocobolo wood handles; also rosewood and some ebony. We are not able to get as high a polish on our cocobolo and rosewood as some of our competitors and we have not yet been able to find the reason why. It seems as if there must be some sort of a wax or grease that they are using in their final finishing wheels to finish the wood, or possibly they are using a lacquer of some kind. We are not using anything of the sort at present. Our method is to grind and sand, grease, buff and polish the handles on a leather-faced wheel with commercial polishing compounds. As before stated, however, we are not able to get anywhere near the high luster that our competitors do on these same woods.—R. P. Co.

The following methods seem to work out satsisfactorily in one of my customer's shops.

First is the tumbling method—tumbling the handles first in the bare wood with old scraps of sandpaper until smooth. Then the handles are placed in another tumbling barrel and tumbled with a synthetic varnish until they are all covered and smooth. This will give them the desired gloss and smoothness.

Second method is the same, only wax is used for the final tumbling. This method does not leave as hard a surface as method No. 1.

Third method is to give the handles one or two thin coats of lacquer, preferably an alcohol-and-heat-resisting lacquer. Then tumbling in a wax tumbler, or buff on a buffing wheel.

Method No. 4 is to coat the

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handles with two coats of the same lacquer as in method No. 3. Buff on buffing wheel until smooth, using no compounds or wax; just buff dry. Then dip the handles in what is known in the trade as a gloss thinner. This thinner will bring to the top practically all the gloss in the lacquer and will leave a beautiful finish.

Method No. 5 is to polish the handles with a buffing wheel, using a high-polishing wax like that used on automobiles. This will give a high luster and a long-lasting job. It may require two coats on some of the woods, but the job is economical and good.

These methods have proved satisfactory on practically all kinds of woods and I am sure you will be able to pick one of these for your work.—ORRIE M. MAAL.

Checks in Finished Plywood

In reference to the inquiry by the Cabt. Mfr. in March issue, page 58, concerning swelling, shrinking, checks, splits and cracks in plywood after the rubbing operation, my conclusion is that one of the greatest factors causing the trouble is the use of a rubbing compound having a water content. If the trouble were caused by the glue or by the plywood being too dry or too damp, the trouble would probably be noticed before the rubbing operation. My suggestion would be to change the polishing method.

To go into the problem a little deeper, the Cabt. Mfr. states that a sealer coat is used, followed by two coats of flat lacquer—there being peculiar reasons why a flat

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lacquer is desirable. However, I would suggest that at least the first coat of lacquer be changed to a gloss lacquer. This will tend to make the cabinet more resistant to moisture and will reduce the possibility of a short finish, which results in checks.

And finally, where it is desirable to put a high gloss on this type of finish, the possibilities of a final rub with rubbing wax should not be overlooked. The use of wax will greatly enhance the finish, not to mention the added protection against nicks and scratches.

When this method is used it is well to sand the gloss lacquer gently when it is thoroughly dry. The flat lacquer should be put on sparingly, making sure to "shoot wet." Sharp angles in the cabinet should be masked to avoid fog dust. The rubbing operation can be eliminated by waxing and polishing. It is a good idea to use a slow thinner to reduce the fog dust when shooting flat lacquer.—H. H. GLINKE.

Compressed Air Pipe Lines

After reading Mr. Crawford's most interesting article on "Compressed Air for Spraying", beginning on page 32 of Feb. issue, I would like to add two suggestions which have been found helpful. These Mr. Crawford no doubt knows but overlooked them in writing his article.

To minimize the possibility of carrying water and oil from the compressor to the spray gun, use pipe of ½-in. to 1-in. in diameter larger than that of the pipe con-

nection usually provided on the compressor. The carrying along of moisture and oil is reduced considerably as you reduce the speed of air through the pipe; the same volume of air per minute, coming through 1½-in. pipe, will deposit its moisture on the pipe much more quickly than air going through a 1-in. pipe at a much faster rate. (Pipe cross section ratio is 2¼ to 1).

The pipe going from the compressor should go upward just as high as the ceiling permits and, if possible, to the ceiling of the floor above and then branch out horizontally. The more riser you have before going horizontal, the less moisture will be carried over.—CARL J. SCHUMANN, President of Hilo Varnish Corp.

Shellac and Lacquer Sticks

Do you use shellac or lacquer sticks, of repair cement, colored to match, for filling holes, dents, scratches or cracks in the finished surfaces of hardwood, metal or marble? We have just received a 9¼x11-in. card having 40 labeled samples and listing 100 different colors of such sticks for making burn-in repairs that "will not raise, soften or become affected by any type of lacquer." A card of this kind will be presented to users of repair cements by the Universal Shellac Stick Co., Inc., 28 Howard St., New York, N. Y.

Synthetic Organic Chemical Book

A spiral bound booklet containing more than 60 pages, compiled and copyrighted by The Sharples Solvents Corp., Philadelphia, Pa., reveals a wealth of detailed information about many chemicals that are used in modern finishing materials. This is the 10th edition of the Sharples book. It has a convenient table of contents in which products described are listed.

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For the Metal and Wood Working Industries

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H. V. Walker Co., Elizabeth, N. J.

"FINISHES TO FIT THE PRODUCT"

Kindly mention INDUSTRIAL FINISHING when writing advertisers

Letters from I. F. Readers

(Continued from page 8)

method in common use is to apply a solution of alcohol-soluble nitrocellulose, with just enough acetone to help soften the celluloid. Five to 10% of acetone is more than sufficient. I would avoid all methods that require any excessive heats.—W. O. S. (Chemist).

Solvent Recovery Still

One of our overseas branches has referred us to page 50 of the Dec. issue of INDUSTRIAL FINISHING with regard to a recovery still for reclaiming lacquer thinner. Will you please forward to the writer's attention contents of page 50 of your Dec. issue, so as to enable me to contact the manufacturer of this product with regard to this particular type of equipment?—E. G. L., Automotive Paint & Trim Section; Production & Engineering Dept.

In your Feb. issue of INDUSTRIAL FINISHING you illustrate some sort of a still for reclaiming and cleaning solvents. We would like to have the name of the firm that manufacturers this article, and some more information and prices, and whether this would be a worthwhile article in a factory that would use possibly 30 gallons of cleaning thinner monthly. —N. D. E. (Millwork).

The manufacturer is Barnstead Still & Sterilizer Co., 6 Lanesville Terrace, Forest Hills, Boston, Mass. —see article beginning on page 28 of this issue.—Ed.

Paint Meter Wanted

Will you please ask the manufacturers of the Niagara Paint Meter, described in your Feb. issue, page 19, to send us full particulars and prices of this instrument by return mail?—L. L., London, Eng.

Porcelain Patch

I have had several copies of INDUSTRIAL FINISHING given to me and I am very much interested in it. We are in the decorating business, therefore everything in the magazine does not apply to us, but there are many valuable articles that do interest us.

I would like to know if there is any porcelain patch cement in paste form that is any better than H—— porcelain patch cement. If there is, what is the name? I mean the type used for repairing chipped places on stoves, tables and refrigerators.—T. B. L.

Paint Meter Wanted

We read in the February issue of INDUSTRIAL FINISHING, on page 19, of an instrument suitable for measuring the flow of paint, varnish, etc. We are interested in such an instrument and should appreciate therefore, if you would inform the manufacturers of our interest and ask them to write, giving us information of the

BEUGLER STRIPER

See Your Dealer

Beugler Mfg. Co.

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Pyroxylin Lacquers — Synthetic Enamels — Insulating Varnishes—Baking Enamels

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ENAMELS IMPERVIOUS IVCO TRADE MARK PRODUCTS LACQUERS VARNISHES

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instrument they manufacture.—H. R. B., London, England.

In February issue of INDUSTRIAL FINISHING, you have an article about a Niagara paint meter used to give accurate records of any paint product. We would like to have the name and location of this company and also some more information in regard to prices and attachments. We would only be interested in a gravity-feed meter, as all our paints and materials are sprayed from 5-gallon gravity buckets.—R. C. N. Co. (Cabinet Work).

Roller Coating Machine

Referring to February 1938 issue of INDUSTRIAL FINISHING, page 21, we notice an illustration of a roller-coating machine. Will you kindly favor us with the address of the manufacturers of this type of machine? We shall be further obliged if you will kindly ask them to furnish us with illustrations of such machines suitable for the application of synthetic-resin glues and wood finishings, an approximate price being given for any such machines offered.—H. E. K. Aylesbury, Bucks, England.

Silk Screen Stencils

We notice on page 9 of INDUSTRIAL FINISHING for March, a letter from one of your readers asking about the use of silk screens in place of decals on their enamel stoves. This suggests to us that there might be some advantage in the silk screen process over decals. If so, what is it? Is there a saving in time, or cost, or do you get a better effect? In other words, we use decals on the tanks of our compressor units and if there would be any advantage or saving in the use of the silk screen process, we might consider it too.—U. Mchy. Co.

Organic Coatings

In the March issue of INDUSTRIAL FINISHING, there is an article starting on page 15, by C. J. Branolke, regarding Organic Coatings, which is of much interest to us. If possible, we would appreciate it if you will inform us how we can get additional information regarding this new coating.—C. C. Co.

MAGIC TACK RAGS remove specks, lint and sand particles—bring out that deep, smooth luster, produce a faultless surface for white or colored finish. Why use "home made" tack rags when you can buy MAGIC TACK RAGS at trifling cost! They are tackier, do not dry—are dust-proof and spontaneous combustion proof. Packed in dozen and gross lots or more. Made only by the

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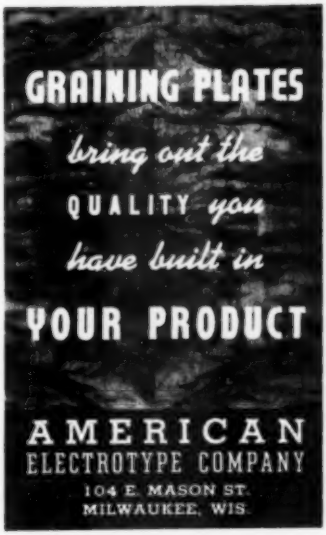

Industrial
FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing costs are applied with finishing equipment.

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EDITORIAL

Get Additional Prospects To Buy Your Products

Many more concerns would buy certain products that other companies make if they only knew those products existed—or if the products were only presented to the prospective buyers repeatedly and effectively. The overlooked, neglected and lost opportunities to sell useful products in industry are really amazing, even during times of slackened business activity. As a matter of fact times do not have to be booming for manufacturers to sell goods. More goods are sold by some companies during prosperous times, it is true, but even during a period of depression or recession, business transactions are carried on and a certain volume of goods is bought and sold.

Products that have the merit of being able to perform certain necessary work more economically or more effectively or more safely are always in demand and will always be in demand so long as any industrial operations are either going on or may be expected to get under way at some time in the future. Where sales of manufactured goods are expected or desired the goods should be advertised forcibly and regularly to the concerns that are or may be interested.

One-shot advertising isn't profitable for a going concern. It is continuous advertising that produces results. Look at the Wrigley, Coca-Cola and cigarette advertising. Everybody knows these products, knows where to buy them, etc., but still they are advertised forcibly, extensively and continuously—and these products keep on selling in large volume, making the "high priced" advertising very profitable for the manufacturers.

Inquiries come to INDUSTRIAL FINISHING magazine repeatedly for products that have received only the merest mention editorially. Companies want to know who manufactures them, what their performance is, and how much they cost. Naturally, this information is cheerfully given, but effective display advertising, presented month after month in the magazine, would catch the eyes of many more individuals and concerns—and elicit more inquiries and produce more sales.

In some cases it takes repeated advertising and the elapse of considerable time to build up or crystalize in certain individuals the urge to even make an inquiry; then more time is needed to make the sale, but the slower and more deliberate buyers are the best boosters for satisfactory products.

Effective advertising is informative and it can be made both interesting and attractive. If it's all three and if it's presented to enough of the interested people who buy such goods, it is sure to produce profitable results, even in times of recession. And when business begins to pick up again more prospective buyers will be already acquainted with the wisely advertised products and they will come into the market more promptly with their inquiries and orders.

Makes Paint Stick To Chromium Plating

The finishing foreman in a metal cabinet factory was faced with a serious problem that had him perplexed and worried. He had chromium-plated band moldings, having four or more parallel narrow grooves, which had to be striped with a white baking enamel. His trouble lay in his inability to make the baked enamel stick permanently in the shallow grooves of the chromium-plated molding. It would chip off easily; he could scrape it off readily with his thumb nail.

About this time a visitor, to whom he confided his troubles, remembered having read an article in INDUSTRIAL FINISHING wherein the author described some decorative finishing on chromium-plated surfaces and mentioned a "special alkali solution" for treating the chromium to make the enamel adhere to it. Inquiry developed the fact that the special alkali solution (used boiling hot) included only two ingredients besides 85½% water, namely, caustic soda 1.7%, and trisodium phosphate 12.8%.

Now about the time the foreman was on the point of purchasing these chemicals his boss, who knew a little about chemistry, recognized one of them as being an ingredient of a commercial metal-cleaning compound which the company was using at that time. Accordingly, he ordered a delay on the purchase of those chemicals and suggested that the foreman try treating the chromium molding with this metal-cleaning compound. Well, it worked perfectly. It solved the problem that had been worrying the foreman finisher and others in that organization for several weeks—and it wasn't costly either.

As a further experiment, the foreman tried submerging a scrap piece of the chromium molding in straight chemical cleaner for 24 hours. This test showed no evidence of harming the chromium-plated surface; there was no loss of luster from the chromium.

Performance of Products; Cost of Operations

The purchase of materials, equipment and supplies for use in industrial finishing departments is more and more guided by the results of performance tests. For example, new materials to replace those already in use must show

some marked advantage, such as providing a more durable, longer-lived coating, or a coating that has greater adhesion to the surface, more luster, greater attractiveness, more body per coat, quicker drying; or greater resistance to moisture, fumes, dust, alcohol, or solutions of acid and alkali; or lower cost.

New equipment is practically always purchased on the basis of its favorable performance, its dependability, its labor saving and cost saving possibilities, and the reputation of the manufacturer.

However, to make intelligent decisions upon whether or not it may be profitable to purchase certain new materials, equipment or supplies, prospective purchasers must be armed with detailed and accurate cost analysis of their present production and maintenance expenses. Without this information, decisions can be based only upon guessing, hoping and listening to what someone else says.

Where operations are underway and no accurate costs are known, management should take steps to find out what the finishing costs are on every item in the line. The finishing foreman should know how much material, labor and supplies are expended on each operation and on each unit. This information is needed not only for use in making decisions as to whether to change at any time the materials, equipment, supplies, methods or labor, but it is essential in the figuring of production costs on all items in the line so those items can be correctly priced as to factory cost.

There is more need now for continually keeping an accurate check on production costs, because so many changes are taking place and they are going on so rapidly that serious mistakes and severe losses may result through lack of this essential knowledge. This is especially the case in finishing departments where the introduction of certain new finishing materials may change the entire finishing schedule, and part if not all of the equipment along the finishing line.

In these days of conservatism on the part of industry and business, fewer concerns are risking money on speculative changes. They demand to know, from careful and repeated performance tests, what results to anticipate through adoption of any new materials or pieces of equipment, or even an item in the line of supplies.

Water-Wash Spray Booths

One of our good finisher friends, Mr. Howard H. Ford, when asked to comment on some of the newly developed finishing-room equipment, wrote us as follows:

I would consider the latest type of water-wash spray booth, which is now in use in a great number of finishing departments, as one of the greatest steps to modern and uptodate finishing rooms. The reasons are that it prevents fumes and spray dust from blowing around the department through defective suction pipes and fans—to which is credited a large part of the refinish work in the average plant.

It practically eliminates the fire hazard (or reduces it to a fraction of what it was) which is quite a big factor today, considering the fact that we are using a more combustible material in our fin-

ishes and we must be on the alert for fires in our finishing rooms.

Also, water-wash spray booths are a boon to the health of the operators as they remove the fumes and purify the air to a greater extent in the booth—so the operator does not need to wear a respirator or mask. This gives him better lighting facilities, enabling him to see his work from all points, therefore allowing him a chance to produce the best finish within his ability.

My concern is figuring on a building program which will enlarge the finishing department, and I intend to install and equip my department in the future with all water-wash type spray booths.

Off-Color Troubles

SOME years ago I had a large account, using several barrels of a high-heat baking vermillion red dipping enamel, which was made up in a non-bleeding pigment type.

After having used it for a number of years with practically never a reject, it was discovered one noon time that a great portion of the work was coming out of the ovens with a golden tinge which looked somewhat as though oil had been on the workman's hands.

We checked back from every angle and found all material in the original drums was up to standard and that when reduced it would work for several hours and then develop the "bleed," for this was what was causing the golden tinge. At first it was assumed that someone in the finishing room was doctoring the material. Accordingly everyone was carefully watched. It soon became apparent that we would have to look further for the trouble. We spent several days and wasted a lot of material, as the company was having to dump tank after tank of bleeding material, this being their rush season and production was at its peak.

Arriving at the plant one morning I found one of the tanks working satisfactorily after several hours of dipping, while all others had gone bad as usual. I investigated and found that the drip board on this tank had been covered with craft paper, while the workmen had been using old discarded advertising posters as covering on all drip boards ever since the day the trouble started. These posters, being printed in bleeding red ink, were allowing the ink to be drawn through to the blank side of the paper, which was turned up on the drip board. As a result the bleeding ink mixed with the drips, was returned to the tank and eventually caused all the material in the tank to bleed.

As soon as clean craft paper was put on the other drip boards the trouble disappeared.

This was a tough one to trace down as the plant was operating on a 24-hour basis and I never

Bull Dog Quality Lacquer Sticks

(New and Entirely Different)

The perfect Lacquer Burning-in Cement. Will not raise or soften and is not affected by any type of lacquer.

LARGEST LINE OF COLORS

Write for Color Card, showing both Lacquer and Shellac Stick Colors and for the name of nearest distributor.

Universal Stick Shellac Co., Inc.

28 Howard St. NEW YORK, N. Y.

What's New in FINISHES!

Case History No. 8

A manufacturer of table tops offered the problem of developing a finish for card tables that would not be damaged by burning cigarettes. He hoped to reach wider markets by offering card tables so protected.

In that a cigarette often reaches a temperature as high as 1000°F. even when burning away without draft, it was recognized that this case offered quite a problem. The case was undertaken, however, and a most satisfactory finish developed that admirably meets all requirements.

The "burn-proof" coating is the baking type of finish requiring about 300°F. and may be made in practically any color except white or light tints. It may be used on any material that will withstand the specified baking temperature. This coating also resists alcohol, alkali and other hard abuse.

Manufacturers of table tops, dressers, furniture, ash trays and other articles that are subject to burning matches and cigarettes, who are interested in this problem or in the solution of a specific problem of their own, are invited to write, furnishing all details, to INDUSTRIAL RESEARCH, DIVISION OF WIPE-ON CORPORATION, 105 HUDSON ST., NEW YORK. A complimentary copy of "Case Histories" will be sent covering this problem and others, such as, non-discoloring white metal finishes; two-tone finishes; eyelet coatings; 10-minute air dry metal finishes; magnesium alloy finishes; airplane finishes and seam compound, and coatings to resist alkali, alcohol and acids, together with a solution of your individual problem.—Advt.

happened to be on hand when the drip boards were being cleaned. Naturally, I had no inkling of the fact that they had made a change in the type of covering, and questioning had not brought out anything, as they had never even given the paper covering a second thought as a possible cause of trouble.—R. COMAN SAVOYE, Industrial Salesman.

Editor's Note: Thank you, Mr. Savoye for your excellent response to our request (Jan. 1938 issue, page 32) for more accounts of experience with off-color troubles. Let's hear from more salesmen, servicemen, chemists and finish users. This is an important subject.

T. J. Kelly, President of Advance Paint Co., Died in Florida

Thomas J. Kelly, President of the Advance Paint Co., Indianapolis, Ind., died April 1 in a hospital at Hollywood, Fla. Mr. Kelly was 62 years old. He and a former associate founded the Advance Paint Co., 23 years ago. Survivors include the widow, a son, R. E. Kelly, who is secretary and treasurer of the firm, a married daughter, four married sisters and two brothers.

Celluloid Corp., Chemical Division Office Moves to N. J.

Mr. W. W. Bell, Director of Sales, Chemical Division, Celluloid Corp., announces that the company's New York office has been moved from 10 E. 40th St., New York,, N. Y., to the general and plant offices at 290 Ferry St., Newark, N. J. The announcement further states that this move has been made in the interest of better service to their customers and will place the sales office in closer contact with Mr. R. L. Shuman, Supt. of the Chemical Division, who also heads the Research and Production activities. All inquiries and correspondence to the Celluloid Corp., should be directed to 290 Ferry St., Newark, N. J.

Eclipse Shows Spray Gun

The Eclipse Air Brush Co., Inc., 390 Park Ave., Newark, N. J., is sending out an 8½x11-in. circular which bears an attractive full size cut of "The Gat," Eclipse's new 22-oz. spray gun. Features mentioned include: Nozzles for all materials; external nozzle for volatiles; low pressure; rapid operation; excellent results.

H. V. Walker Co. Adds Two Men

The H. V. Walker Co., Elizabeth, N. J., has added two well known lacquer men to its staff.

Mr. I. T. Darlington, who has acted as Production Manager and Technical Sales Director for an eastern lacquer manufacturing company for the past 18 years, has joined the H. V. Walker Co. as Technical Director, taking the position of the late Mr. W. C. Hopkins. Mr. Darlington has been directly connected with the development and sales of lacquer materials for the past 20 years.

Mr. C. F. Gross, who has been the sales representative for Eastern Pennsylvania and greater New York for a New York concern for the past 15 years, has also joined the H. V. Walker Co. as Sales Manager.

DETROIT HANDY 'TAC' RAG

Indispensable to refinishers using Varnish and all Synthetic Enamels

REMAINS TACKY INDEFINITELY NON-COMBUSTIBLE

Jobbers and Dealers Write Us for Sample.

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OVEN FOR SALE.

Peterson Traveling Oven 75-ft. at a real bargain. Available on account of merger. Used only a short time and in perfect condition. SIDNEY PELLAR, 5101 W. 65th st., Chicago, Ill.

Classified Advertising

Rate: 45 cents per line per insertion—minimum $1.35

WOOD FINISHER

Desires position in New England. 18 years' experience—tumbling, dipping and spraying. Salary reasonable. References if desired. Address IF-693, care Industrial Finishing.

EXPERT FINISHER

Desires foreman position. 11 years' experience all types metal finishes; familiar with conveyor systems; expert reproducing wood grains on metal; excellent color matcher; handle any number men; go anywhere. Now employed. Salary open. Address IF-689, care Industrial Finishing.

FOREMAN FINISHER

Desires position in furniture factory; 25 years' experience as foreman finisher in N. Y., Pa. and Md., and as service man in N. C., S. C., Tenn., Ga. and Va. Can handle men, produce quality work at low cost, mix and match colors and create new finishes. Address IF-691, care Industrial Finishing.

SALESMAN WANTED.

Manufacturer of complete line of finishing materials wants salesman to handle Wisconsin. Will pay no salary or expenses but offers deal very attractive to salesman with any established trade at all. Address IF-692, care Industrial Finishing.

LACQUER SALESMAN WANTED.

Old established firm has opening for lacquer salesman in Metropolitan area, New York. Only those who have been connected with a reputable house and have a good following need answer. Exceptional opportunity. Salary and commission. Give full particulars. Address IF-690, care Industrial Finishing.

INSTRUCTION.

Evening classes in Philadelphia and New York in Paint Technology, Synthetic Resins, Industrial Processes, Metals and Alloys primarily for non-technical business men. Elementary and advanced courses by mail. DR. BROWN, Industrial Consultants, 3404-6 Baring St., Philadelphia, Pa.

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QCPW:
QUICK COATING PIGMENT WIPING
STAIN
DRIES TO RECOAT IN ONE HOUR
Reduces with Naphtha

QUALITY...

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